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ABSTRACT

The first half of this report reviews four major projects which are training tutors for cross-age and peer tutoring, and the second half outlines a model for training and using tutors in either elementary or secondary schools. The four projects reviewed are 1) Youth Tutoring Youth, operated by the National Commission on Resources for Youth in New York City; 2) Tutorial Community Project, operated by Systems Development Corporation in Santa Monica, California; 3) Cross-Age Teaching, an ESEA Title III Project conducted by the Ontario-Montclair School District in Ontario, California; and 4) Development of a Tutorial Program for Kindergarten Reading Instruction, conducted by the Southwest Regional Laboratory for Educational Research and Development in Los Angeles. On the basis of features identified in the review of the four projects, the model makes detailed recommendations on procedures for selecting and training tutors, selecting tutees, and scheduling. It also contains a behavior checklist which identifies methods tutors should use consistently in tutoring sessions. (RT)

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# TRAINING AND MANAGEMENT OF STUDENT - TUTORS

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## PREFACE AND ACKNOWLEDGMENTS

The notion of using students systematically as tutors has always been an attractive one, for the number of potential tutors is almost as large as the number of students who are potential tutees. Informally, students have tutored each other, sometimes under the direction of a teacher, and more commonly while doing homework, or, in higher education, in "cram sessions" prior to examinations. My first encounter with a project involving students used in a particular manner as tutors was as an observer of some of the tutoring activities directed by Dr. Lloyd Homme as part of a project to be described at some length in a later part of this Report. One of the basic purposes of Homme's project was the use of student peer-tutors to provide immediate confirmation of correct responses and identification of errors. (Note: typically tutors who are the same age or who are enrolled in the same course as their tutees are referred to as "peer-tutors," while older students, or students who have completed the course and are not enrolled in it at the same time as the tutees are referred to as "cross-tutors").

Homme reported (1964, 1968) that with a minimum of training, and with a strictly specified list of "do's and don't's" the tutors functioned effectively and provided the supplementary feedback that the teacher would not otherwise be able to provide on an individual and continuous basis. During visits to several of the Regional Educational Laboratories in the Summer of 1969 I found that several principal investigators were planning to develop peer-tutor or cross-tutor methodologies as part of the implementation components of courses they were developing. Informally, while consulting for several school districts that were engaged in developing programmed materials or individualized instruction systems, I encountered teachers that had assigned tutorial activites to some of their students, generally their more capable students. The observations of these teachers led them to the conclusion that student tutorials were too unreliable and unpredictable, and that while some students seemed to be quite skillful in instructing their peers, more were not, and that peer tutoring was not feasible as they had been doing it.

Considering the attractiveness of the idea of students tutoring students, and Homme's success, I decided that a programmed course and set of procedural guides should be developed to teach certain skills and procedures, and undertook this project for that purpose. I contacted individuals and institutions that had expressed interest in student tutoring, reviewed relevant literature, and was then quickly led to several significant projects that were far more extensive than Homme's study, some of which had already developed instructional materials or courses for the training of tutors. After contacting the individuals involved I found that a great deal of experience had been

accumulated and that a great deal of the groundwork for tutor training had already been laid (the individuals involved will be identified in the acknowledge section to follow, and their projects will be described in the body of this Report). Upon reviewing their work, procedures, instructional materials, and related reports, I reviewed the purpose of this project, and decided that a different approach, leading to the same end result was probably more appropriate. I had initially assumed that many of the tutorial techniques and method of training students to implement them would have to be developed empirically, but considerable data were already available answering many of the feasibility questions. The four major projects referred to above have reported positive results from a variety of training procedures, a variety of tutoring techniques and general procedures, a variety of ages and characteristics of tutors and tutees, and both objective and subjective data supporting the notion that tutoring has highly desirable consequences for both the tutees and the tutors.

What I have done is review the project materials, tutor training methods and materials, and reports from those four projects, plus other materials, and have obtained additional information from the people involved. From the wealth of material I have attempted to assemble a set of procedural guidelines for establishing and managing a minimum tutoring activity within the existing resources of most schools. Many of the techniques that have been developed and used require extensive training, or tutor assignments possible only within special types of educational settings, or the development of special tutor-guidance materials; those techniques are excluded here because they generally lie beyond the time, staffing, and developmental resources of most public schools.

The teacher -- typically the teacher responsible for the tutees -- plays a critical role in the management of the tutorial activities, and where cross-tutoring is used, the teachers responsible for the tutors and the tutees are the most likely prospects for providing the tutor training. Because of the importance of the teacher involvement and management, and because student tutoring can be implemented at any grade level, a programmed text as the vehicle for tutor training does not seem to be appropriate; a program developed for students at one grade level would not be flexible enough and appropriate for all other grade levels. Instead, the Appendix to this Report consists of a description of a course for training students as tutors, supplemented by procedural guidelines, designed for implementation by teachers.

The four major projects were:

1. Youth Tutoring Youth, operated by The National Commission on Resources for Youth, New York City, and replicated in a number of other States. Mrs. Mary C. Kohler,

Director. Information was provided by Mrs. Kohler and by Miss Lorraine Kavanagh, and they were most generous in making large numbers of documents available, including training manuals, practice materials, and project reports.

2. Tutorial Community Project, operated by Systems Development Corporation, Santa Monica, California. Ralph J. Melaragno and Gerals Newmark, Co-Directors. Information was provided by Mr. Newmark. Although the actual project materials were not provided, reports and other descriptive materials were made available. A second project at SDC involves "The Systems Approach to Tutoring" and the development of a Tutor Training Kit. Information and materials describing this project were provided by Mr. Tom Collins, project staff member. Both of these projects grew out of the research and development efforts of Dr. Grant V. Harrison at S. D. C. and at the University of California, Los Angeles. Portions of his work was done under the direction of Dr. Arthur M. Cohen for the doctoral dissertation. Dr. Harrison was very helpful during the initial stages of this project in helping me locate relevant projects, and he also made a number of reports available.

3. Cross-Age Teaching, E. S. E. A. Title III Project, conducted by the Ontario-Montclair School District, Ontario, California. All materials and information were provided by Dr. Frank Riessman, of New York University.

4. Development of a Tutorial Program for Kindergarten Reading Instruction, conducted by the Southwest Regional Laboratory for Educational Research and Development, Los Angeles. Information and materials were furnished by Fred C. Niedermeyer and Patricia Ann Ellis. The tutor-training developed for this project, unlike the other projects, was designed as part of the development of a single, specific course of instruction. The tutoring methods and the tutor training procedures, however, are relevant to other kinds of objectives, materials, and students.

The assistance and cooperation of the people mentioned above is gratefully acknowledged.

Staff of this project included Mrs. Marilyn Heiner, who visited all of the projects, conducted interviews, and collected and reviewed much of the material, Mrs. Martha Mordecai, and Mr. Dale T. Ball, both of whom assisted in the review of all materials and the writing of this Report and Appendix.

SUMMARY

Tutorial instruction can be defined as "interactive instruction." A tutor does not simply lecture to his tutee. Students being trained to act as tutors have to be taught certain interactive and feedback techniques in order to learn to avoid simply presenting information to their tutees. Tutors have been used in school settings and for special education purposes for a number of purposes: for the benefit of the tutors, in both the affective and cognitive areas; for the benefit of the tutees, to "manage" their work with instructional materials of various kinds; for the benefit of the tutees, for remedial purposes; for contingency management purposes; and combinations of these four.

When special instruction materials (e.g., programmed text or practice exercises) are used, the tutors have to be trained in certain general purpose tutoring techniques, and in the specific techniques designed around the materials. At one extreme the tutor might be taught some diagnostic and tutorial techniques and be given only general guidance such as, "teach your tutee this material." At the other extreme the tutor might have no options of his own, but must follow a rigid, step-by-step script.

Review of the techniques -- both tutoring and tutor-training -- used in several major student tutoring projects, led to the identification of a number of tutoring techniques and management procedures that should be feasible in schools without a requirement for special staffing, funding, or major development, training, or management time commitments. This Report describes some of the work that was done as part of those projects, and their findings, and describes this simplified tutoring training and management system. A more detailed description of the system is provided in the Appendix.

## INTRODUCTION

Schools are confronted with many problems, not the least of which are increasing numbers of students and the problems of providing adequate staffing. The struggle to hold student-teacher ratios to a manageable level is becoming increasingly difficult, and many alternative approaches have been explored. One of the major and most promising -- but certainly the most complex -- methodologies currently receiving considerable attention is individualized instruction (I. I.). Hundreds of schools are currently experimenting with I. I. in a major way, and thousands in a relatively small degree of involvement. In an I. I. setting, the teacher spends less time presenting information and instructing large groups, and more time as a monitor, "consultant," and discussant. Major changes in all activities and materials are required in even a small-scale I. I. effort, but certain elements of I. I. can be added to the "conventional" classroom with a minimum amount of upheaval. One of these elements is individual diagnostic and remedial feedback and remedial instruction.

An I. I. setting must of necessity make use of the "accountability" approach. One characteristic of accountability is the requirement that developing deficiencies be identified, diagnosed, and remediated in order to allow each student to progress toward the course objectives. The assumption cannot be made that instructional procedures, events, and materials are so perfect that no follow-up is necessary, or that students will need no further help beyond the initial instruction. A variety of approaches have been developed which rely heavily on initial instruction (generally redundant involving a number of presentations, materials, and media coverage of the same information), followed by progress evaluation -- diagnostic testing -- and some form of individualized remedial instruction. Approaches that are structured in that manner include learner-controlled instruction, individually prescribed instruction, the "learning package" and "student contract" approaches, and others.

Most of the I. I. systems make use of instructional objectives and criterion testing, so that diagnosis of errors and deficiencies can at least be tied to objectives. This is possible because each objective is tested in a criterion referenced test, as compared to a norm referenced test, which samples the content, but does not necessarily test all objectives (there are other differences between norm referenced and criterion referenced tests, but they are relevant to the present discussion). When a teacher administers a test, and assembles the test scores, he can sometimes identify test items missed by such a large proportion of the students, that second instruction -- remedial instruction -- appears to be necessary and appropriate for the entire group of students. But not all test items fall into that category, and eventually the teacher must make individual decisions about the items missed by, say, ten or twenty percent of the students. Time con-

straints generally limit the amount of group remedial instruction possible, and it would be most beneficial if the teacher could in some way provide individualized remedial instruction for every student, or at least for small groups of students for specific objectives. Among the resources that can be used for this individualized remedial instruction are individualized remedial materials such as remedial programmed texts, or parents, or teachers' aides, or other students. This Report will deal with the last of these, the use of students to tutor other students, for remedial purposes.

The tutorial interaction has always been highly praised, even though the exact procedures that a tutor might follow have never been precisely or accurately defined. In a general way, these procedures have been identified as presenting a "small amount" of information, and then asking the student -- the tutee -- to interpret or apply, or explain that information. The tutor might present a question, problem, or task as a precise direction for the student. The tutor can prompt or guide the student, and upon completion of the response, provide immediate confirmation, prompting, clarification, or correction. The student can ask questions at any time, and the tutor can adjust the pace, approach, and level of presentation to the individual student. This continuous interaction has been described many times in the literature of programmed instruction, which is presumably designed to provide a form of tutorial instruction.

Tutoring skills are rather rare, requiring techniques that few teachers are taught or have the opportunity to learn, confronted as they are by groups of students most of the time. Many teachers find it difficult to avoid interrupting or interfering with discussions in the classroom because they have developed most of their techniques as lecture and demonstration skills; for this same reason, teachers who have not had the opportunity to become skilled tutors typically lapse into lecturing to individual students, even when a tutorial interaction is possible. So tutoring skills are not necessarily easy to learn, nor are they highly probable "instinctive" methods of instruction; students in large classes tend to see teachers lecturing to groups -- not tutoring -- and when given the opportunity to teach other students, they tend to emulate their teachers, teaching as their teachers do. If students are to be trained to be tutors, the nature of their tutoring procedures need to be sharply limited, defined, and taught.

The use of students as tutors is not limited to the remedial function, and student tutors, both peer-tutors and cross-tutors, have been used for individualized initial instruction and for a variety of specific purposes that will be discussed in the material that follows. Remedial instruction was only one form of tutoring that was considered, but all other forms seem to be dependent upon very extensive tutor training, the development of large quantities of tutor lesson plans and special study materials, or both. The same projects that provide the data indicating the feasibility of student tutoring also make clear the extensive research, development, training, and management requirements that are encountered.

FINDINGS

The Youth Tutoring Youth project (see references 1 through 7) is a project that has a two-pronged objective: improved cognitive and affective results of learning activities not only of the tutees, but of the tutors as well. In fact, the primary thrust of the project is aimed at the affective learning of the tutors. Tutors are typically -- but not exclusively -- under-achievers in high school, tutoring elementary school students are performing below grade level, primarily in reading although other subjects are also involved. The same basic project has also been expanded to a number of other cities around the country.

The overall orientation of the youth tutoring youth approach might be described as "highly personal, human relations, and self-oriented." A close personal relationship is to be established between tutor and tutee, with emphasis on providing opportunities for the development of self-esteem and the perception of individual worth and competence. The importance of the approach developed by the National Commission on Resources for Youth for the Youth Tutors Youth project might lie primarily in its direct attack on the types of problems described by Dr. William Glasser in his books, Reality Therapy, and Schools Without Failure. Glasser feels that the "prime motive" of young people in our society -- with some rare but notable exceptions -- is no longer survival in terms of food, clothing, shelter, and protection. Instead, he says, the primary motive now is identification, attempting to answer the question, "Who and what am I?" This "need" results in students attempting to answer that question, looking for, attending to, and accepting any relevant information as a basis for their producing an answer. "Self-esteem" has been described as the sum of those statements that an individual makes to himself, about himself. According to Glasser, a child very early looks for answers to the basic question, and his self-esteem -- the collection of statements about himself -- is influenced in a major way by his successes and failures in school, as he sees them and as the school describes them to him.

Glasser goes on to say that as these self-identifications develop, a student's identification of himself as a failure becomes a self-fulfilling prophecy. The student who describes himself to himself as a failure in school, a slow learner, low achiever, or "dumb kid," in the school context, then learns not to try, not to work hard for success that never comes. Activities that are never reinforced tend not to continue to occur. In the reinforcement-oriented analysis of behavior, the absence of reinforcement results in "extinction" -- a progressively lower probability of occurrence of the unreinforced behavior. Success, and the identification of success and increased competence is generally assumed to be reinforcing, and following continuous relevant reinforce-

ment, intermittent and relatively infrequent reinforcement will adequately sustain the behavior involved. But intermittent reinforcement is not an efficient way of establishing behavior; response probabilities should first be established by frequent and continuous availability of reinforcers, or the behavior might extinguish rather than increasing in probability. In Glasser's terms, the student who experiences success only infrequently never has the chance to learn to see himself and think of himself as a success; the failures are much more apparent. The student who is initially successful, or who brings with him to the school setting a self-concept of competence, and an expectation of success, operates from a base of success, and unless failure becomes continuous and overpowering, is "turned on" rather than "off" by challenge, the possibility of failure, and even by frequent failure.

The Youth Tutoring Youth project has a wealth of materials designed for use by the tutors and tutees to practice communicating with each other, about themselves, their interests, and their very personal feelings. There are detailed descriptions of games, field trips, joint activities, and projects of many kinds designed to facilitate communication and rapport between tutor and tutee. Although the project began before Glasser's writings and related projects in education became widely known, the emphasis of the project is very much like Glasser's: self-esteem, self-confidence, and the student learning to discriminate his own competencies. Neither Glasser nor the Youth Teaching Youth project are as much concerned about the methods and techniques of instruction as they are with the "affective climate" within which the instruction takes place. This is not to say that those approaches ignore the relevance and importance of instructional methodology, only that their main thrust is on affective rather than cognitive development.

The tutoring projects conducted by Systems Development Corporation (S. D. C.) (see refs. 8 and 9), The Southwest Regional Laboratory (S. W. R. L.) (see refs. 10 through 15), and the Ontario-Montclair School District (see refs. 16 through 18), all emphasize the importance of self-esteem and the affective importance of the tutor-tutee relationship. The Youth Tutoring Youth project places more emphasis in its reports on the benefits for the tutee than do the other projects, but all of the project reports indicate that both affective and cognitive measures taken -- although adequate measuring instruments and techniques are lacking for some purposes -- show gains by the tutees, and, where measures were taken, by the tutors. It would appear that the peer-tutor and cross-tutor relationship has more advantageous and desirable consequences than simply serving as a supplementary instructional or management tool for the teacher!

Among the recommendations made by Glasser (1970), several appear to be relevant here: he suggests that a student who does not

"operate from a base of success," one who is objectively or subjectively in his own eyes, a failure, needs more close and personal attention, supportive, and by someone more competent than he: and that students also need to experience success rather than failure as the final event in any activity or assignment. The latter point, of course, is borne out in the cognitive area by the research data on correction versus non-correction in discrimination learning, and by the programmed instruction research on the function of confirmation and correction, including Pressey's data on the lasting consequences of test item errors (Pressey, 1927). A student who takes a test and knows that he did not do well, or who is left in the ambiguity of not knowing whether he did well or poorly, and receives no immediate confirmation or correction, carries with him undesirable affective as well as cognitive consequences. The reported results suggest that this undesirable chain of events can be broken by the use of student tutors.

## Training of Tutors

All of the projects provide training for the tutors: it is not assumed that students already possess the relevant communication skills, or that they will be "natural" tutors, interacting and guiding their tutees rather than lecturing to them. Apparently the tutors have to be prepared for what they will encounter and for their own probable actions; for example, they have to learn the difference between the desirable and undesirable kinds of actions they might take, learn alternatives to their own impatience in the face of repeated failure or errors by the tutees, and must learn certain procedures for establishing and maintaining rapport with their tutees. The projects represent a broad range in the degree of control exercised over the tutors. The Youth Tutoring Youth project represents one extreme, which provides little precise guidance for the tutor in the cognitive tutorial interaction, while the Southwest Regional Laboratory project designed the tutorial to implement and supplement special instructional materials in a closely directed manner.

Dr. Grant V. Harrison, of Brigham Young University, while a graduate student at the University of California, Los Angeles, conducted basic research -- some of it as the preliminary portions of the S. D. C. projects -- in the training and management of student-tutors. In one study -- reported in his dissertation -- he describes the following tutoring procedures or techniques taught to student-tutors:

1. Putting the tutee at ease
2. Clarifying the prescribed task
3. Showing the tutee how to verify his answer (when pro-

grammed materials or keyed workbook exercises are used)

4. Directing the tutee to read each problem aloud
5. Having the tutee respond overtly, marking or recording his response before the tutor provided any feedback
6. Having the tutee verify each response
7. Avoiding any form of punishment
8. Providing verbal praise when appropriate
9. Providing a reward (object or activity) when appropriate
10. On designated problems, evaluate all elements of "mastery"

The procedures and techniques that make up the tutor activities and tutor training for the S. D. C. projects are apparently based on this set of techniques, and the techniques taught to tutors in the S. W. R. L. and Ontario-Montclair projects are basically very similar. All of the projects also specify certain "rapport-establishing" techniques. The Youth Tutoring Youth project -- as noted before — does not emphasize the techniques of confirmation, correction, response requirements, etc., but concentrates almost exclusively on rapport, personal communication, and affective considerations for both tutor and tutee.

## Evaluating Tutor Effectiveness

One of the basic studies performed by Dr. Harrison indicated that untrained tutors do not accomplish very much in terms of helping their tutees achieve specified objectives. Tutors that were trained in the ten procedures listed above, whether trained by professional educators or non-professionals, not only performed the ten kinds of procedures more often and more effectively -- as would be expected -- but their tutees also learned significantly more. The Youth tutoring Youth project, in spite of its concentration on affective consequences, also produced gains in cognitive measures. It is worth noting that the Youth Tutoring Youth project reports, although they can report gains, also expressed dissatisfaction with available measuring instruments, indicating that the most important desired results were not adequately measured. That point is well taken, and the entire affective area -- attitudes, motivation, interests, self-esteem, etc. -- occupies a most peculiar position in education. A recent -- 1968 -- survey taken by the National Science Teachers Association indicated that science teachers, when asked to describe their most important objectives, describe such things as "a love of science," and "an acceptance of the

scientific method," and "enthusiasm for the study of natural phenomena." A large majority of the teachers responding indicated that objectives of that sort were far more important and desirable than such pedestrian objectives as "being able to apply Ohm's Law to the determination of voltage, current, or resistance in an electric circuit."

Robert Mager, who has become to instructional objectives what B. F. Skinner is to programmed instruction, or what Leon Lessinger is to instructional accountability, has denied that there is a distinction between cognitive objectives and affective objectives (Mager and Deterline, 1969). According to Mager, the critical component of any objective -- cognitive or affective -- is the indicator behavior that is taken as evidence that a student has achieved that objective. The basic question can always be asked, "What indicator behavior -- an observable, objectively identifiable action -- should I look for that will indicate to me that a student has learned to "apply Ohm's Law," or has "developed an acceptance of the scientific method?" There should be some specific behaviors that identify a "science lover" as differentiated from a "non science lover," or a "science hater." What does the student do who has learned to "love science" in a form that will permit his teacher to identify that student as one who has indeed learned to love science? Is it something that the student says, or some act that he performs, or some very minor but consistent tendency to approach rather than avoid certain objects, events, activities, or locations?

Typically, the individual involved in research in the affective area is more willing to accept anecdotal evidence or subjective "gut feelings" about his project than an outside observer might be. The outside observer, on the other hand, looking for objective and standardized measures, will often focus so much on the measurable "nuts and bolts" that he will not notice other relevant indicators even if he encounters them. One of the Youth Tutoring Youth reports makes the point that a group of project evaluators chose such measurable quantities as reading test scores and number of absences as the principle dependent variables for evaluation of the project. Although the project did not suffer from that approach, the report emphasized, with some frustration, the difficulty in identifying, measuring, and evaluating some of the more important, hoped-for effects. Since all of the projects report some form of evidence of desirable affective consequences, and emphasize the importance of these consequences, it appears that Mager's "indicator" approach -- and others -- should be utilized to produce a more extensive inventory of evaluation instruments.

## Reinforcement

The principle of reinforcement in learning, learning theories, and much of the data of learning research appear irrelevant to the

classroom, or at least unusable in the classroom. Various writers (e.g., Hilgard, 1956) have discussed the gap between learning research and instructional practice. Gagne (1970) explains this gap as resulting from the difference between the conditions in a group classroom and in the largely individualized research setting. Each subject in a learning research study typically is subjected to the treatments individually, and responds at his own pace, or, if time is held constant, some other individual response measure is taken. An experimental subject, for example, can be immediately reinforced for each response, while in the group classroom, individual overt responding and reinforcement of individual responses is difficult to manage. Individualized instruction, in some of its forms, can make better use of the findings of basic research in learning, for both cognitive and affective purposes. Reinforcement, for example, is now described as a systematically incorporated feature of various materials and methods that are used in individualized instruction. But some laboratory findings, when applied in a different context than the one in which they were formulated, take on peculiar and controversial forms. In the laboratory, particularly with animal subjects, or small children, reinforcers take the form of physical objects or materials, such as food and water for animal subjects and candy or pennies for children, and we find some teaching machines dispensing candy pellets as reinforcers. But confirmation of a correct response in programmed materials is also assumed to be reinforcing (Skinner, 1958), and so is the removal of ambiguity by either confirmation of a correct response or correction of an incorrect response (Deterline, 1968), or the discrimination by a student of an increment in his own competence (White, 1959; Deterline, 1968).

The identification of a correct response can take various forms ranging from the simple identification of the response as correct, to extensive praise or the presentation of something other than verbal feedback. Contingency management, for example, as described by Homme (1969), makes certain activities available as reinforcers, activities identified by the student as desirable incentives to him. Contingency management is based on the principle first described by Premack (1959), which states that of any two responses, the more probable response will reinforce a less probable response. In practice, Homme and his associates have identified activities that a student indicates that he would like to engage in as "highly probable" activities, and have made the availability of these activities contingent upon the completion of certain tasks. For example, a student might be asked to select from a list (the "menu") of activities one that he would like to engage in upon completion of a specific task assignment, which might consist of completion of a certain number of pages in a programmed text, or a practice exercise. The activities on the menu are empirically selected by determining what activities the student prefers of those that are available or feasible. Completion of a fixed amount of work leads to a fixed amount of time engaging in that

activity. The reinforcing activities selected by the student depend, of course, on the age of the student, but also on his own preferences at the time. The student might select, at any one time, to run and play on playground equipment, or play quietly with various kinds of play materials, or look at a favorite book, or simply talk to other children, or rest by himself. All of these activities and many more have been used as reinforcers with predictable results.

All of the projects reviewed describe various kinds of feedback procedures, most consisting of identification of correct responses, and praise in various forms. Some have made use of variations on the contingency management methodologies for reinforcers beyond the identification of correct responses. Reinforcement is relevant to more than the acquisition of new behavior capabilities; behavior is also maintained or decreases in probability of occurance as a result of its consequences. When an activity stops being intrinsically reinforcing and when extrinsic reinforcers are not available, that activity tends to become progressively less probable and occur less frequently. In other words, if a tutor, for example, finds that tutoring is no longer "fun" and that it is interfering with other activities that he would prefer, that means that those other activities are more "highly probable" or preferred relative to the tutoring activities. Also, it means that the tutoring is no longer intrinsically reinforcing to the tutor. Some tutors and some tutees will continue to find the tutoring interaction reinforcing in a variety of ways; others will require some form of extrinsic reinforcers necessary. Some of the projects -- notably the Youth Tutoring Youth project -- attempt to make the activities engaged in by tutors and tutees inherently reinforcing: games, puzzles, field trips, assembling or producing materials relevant in some way to the individual interests of tutor and tutee and/or the subject matter -- all have been used to make the tutoring sessions more enjoyable in themselves. Another approach, which can be used along with that of making the tutorial activities inherently reinforcing for tutors and tutees, obviously, is contingency management, making preferred activities available to tutors, or to tutors and tutees upon completion of specified tutorial activities. While this has been done to some extent in some of the projects, the most useful reference and set of procedural guidelines is, "How to use contingency management in the classroom" (Homme, 1969).

The tutor is in a unique position to provide frequent and individual reinforcement in the form of immediate feedback, praise, the identification of developing confidence, and various affective consequences. But some tutees -- particularly those "low in self-esteem" as described earlier -- might have to be provided with additional reinforcers. The procedures described by Homme in the reference cited above are recommended for that purpose. The model described in the Appendix includes an outline and discussion of these procedures.

Remedial Tutoring

One of the Systems Development Corporation's tutoring projects and one of the major Southwest Regional Laboratory projects make use of student tutors primarily for remedial instruction. One of the S. D. C. publications, for example, describes the "systems approach to tutoring" and represented the cross-tutoring remedial instruction in a diagram like that shown in Figure 1.

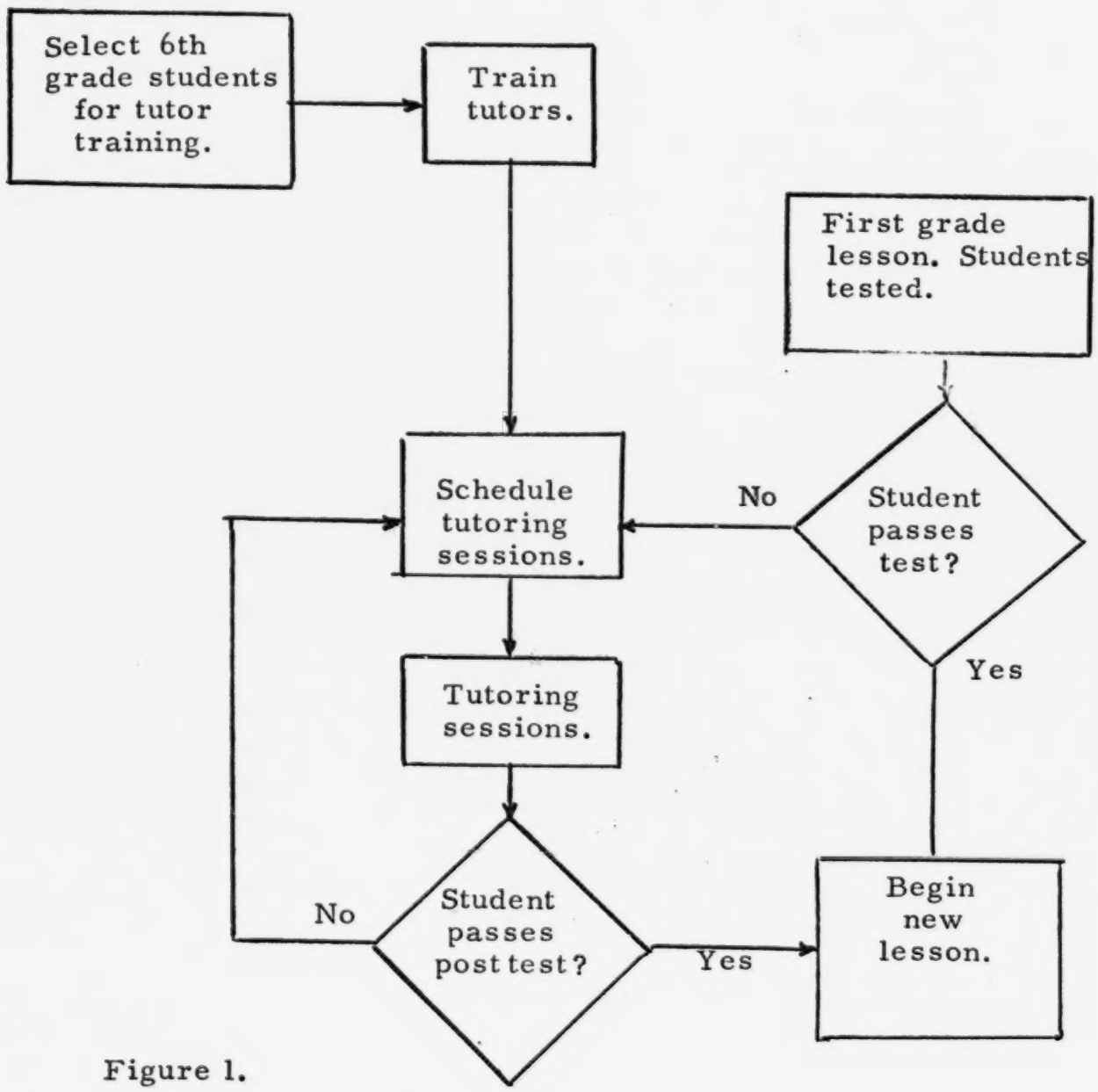


Figure 1.

The two activities represented in the upper left-hand boxes are, of course completed before the main sequence -- shown in the remaining boxes in the figure -- begins, and re-training or training of additional tutors can be accomplished at any time, independent of the

schedule for the other activities shown. The three segments of the figure arranged vertically at the right-hand side of the figure represent the on-going instruction by the classroom teacher. The test that follows the lesson -- represented in the diamond-shaped block -- is a diagnostic test. A student who scores below a cut-off point, or whose performance is considered below the desired level for any reason is assigned to tutorial remedial instruction. A student whose test performance is satisfactory, "by-passes" the entire remedial loop. A student assigned to the remedial instruction attends the tutorial sessions, and upon completing the work, or upon being evaluated as having achieved the objectives by the tutor, takes a second diagnostic test, represented in the figure in the lower diamond as the "post test." If performance on that test is acceptable, he returns to the main instructional sequence; if post test performance is not adequate, he is assigned to additional remedial instruction. A similar remedial approach is described for the S. W. R. L. Kindergarten Reading Program. The initial instruction is provided by the teacher and basic materials, a criterion test is administered, and "second instruction" is administered in the form of a tutorial by student-tutors.

## CONCLUSIONS AND RECOMMENDATIONS

The purpose of the present project was to review the project reports of the selected, large-scale feasibility, research and development, and field implementation projects, for the purpose of developing a simplified tutorial model that might be implemented within a school system without special project funds, staff, etc. The tutorial projects from which information was obtained have undertaken major tasks with major related problems. Of the two projects conducted by Systems Development Corporation, one -- the Tutorial Community Project is an almost awesome undertaking, attempting to change the entire elementary school into a tutorial community. From that project only a few techniques have been selected, not because their methodology is not relevant, but because of the attempt here to provide a "small effort" set of techniques. For the same reason, the tutor-training procedures developed by the various projects -- some of which are quite extensive and ingenious -- could not be adapted in total here, and only a few of the most relevant and necessary techniques have been selected for use here in modified form as required by this project.

A number of generalizations and conclusions can be drawn from the array of materials and reports of the various projects, all of which provided the basis for the structure of the tutorial model presented in the Appendix to this Report.

1. Tutor-generated instruction, with objectives and sample criterion test items toward which to work, is feasible, although extensive training, directed practice and role playing, and close supervision are necessary. Check lists, lesson plans, or practice exercise materials for the tutee and tutor to use together greatly facilitate the tutorial interaction. Some form of printed material is highly desirable.

2. Peer-tutoring and cross tutoring are both feasible, although each has its advantages and disadvantages. A peer-tutor can more easily be scheduled and made available for the tutoring because of proximity; older tutors are generally located in other classrooms, and sometimes in other buildings. The peer-tutor, having only recently achieved the objective himself, can more readily "see the objective through the eyes of the tutee." Cross-tutors, on the other hand, being older, generally have greater verbal skills, and greater competence in the subject matter area. The primary disadvantage in the use of cross-tutors is the problem of scheduling tutor and tutee joint meetings, and arranging transportation -- if necessary -- and getting the tutors to the appropriate place at the proper time. In spite of the scheduling, coordination, and other management problems, cross-tutoring would seem to be the more promising approach.

3. Regardless of the method, media, form of presentation, or nature of the materials used, teachers are generally far better prepared to provide the initial instruction than they are to provide any form of individualized remedial instruction. At least the initial instruction can be provided on a group basis if desired, but remedial instruction becomes highly inefficient, and is only partly effective when presented on a group basis; some form of individualization is highly desirable, flexible and adaptive to the specific problems of each student. The S. D. C. and S. W. R. L. systems for using student-tutors for individual remedial purposes suggest several techniques that appear appropriate for the present project, although further simplifications and some additional procedures are required to fit the requirements of ease of use and minimum developmental activities.

4. A student assigned to remedial instruction as a tutee has already been subjected to a variety of instructional presentations, events, and assigned materials of various kinds. The deficiencies that resulted in his being assigned to the remedial tutorials are identified by the test items that he was unable to answer, or which he answered incorrectly (the latter is often a more serious problem than the former). The test items themselves, and brief scoring keys or brief explanations of the correct answers should be the only materials necessary for the tutor to use. Presumably the tutor, having previously achieved the objectives, can answer the questions or carry out whatever tasks the test items specify. Scoring keys and descriptions of correct answers would provide additional information for the tutor. If the tutorial interaction is built around actual test questions, then no instructional materials or tutorial lesson plans have to be developed. Minimum procedural guidelines -- to be described below -- can be used in conjunction with the test items and correct answer descriptions but can be omitted if only a truly minimum effort can be implemented. The tutors will have to be given training in the use of the test items and correct answers as diagnostic tools. If time is available, the teacher should prepare a brief list of prompting questions that the tutor might use to probe further to identify the source of a student's problem (assuming that it is more than a simple rote retention problem).

The first three conclusions, drawn from the experience of the four basic projects reviewed, lead to the fourth conclusion. The first statement identifies the need for printed materials and specific items for the tutor to follow; the second conclusion points to cross-tutoring; and the third identifies remedial instruction as the tutorial activity. The fourth statement, then, describes the form of material

to be used by cross tutors for remedial purposes.

Summary Description of the Tutorial Model

Frequent short tests, practice exercises, or workbook exercises provide the vehicle for the diagnostic and remedial tutoring assignments and interactions. Generally, elementary schools, particularly at the lower grade levels, provide considerable practice material and assigned activities that produce response records that can be used as a basis for tutorial assignments. Where this is not the case, including higher grade levels that involve less practice material and more widely spaced tests, supplementary materials will have to be prepared.

For each test or exercise, the teacher will prepare brief summary descriptions of the correct answers or appropriate responses. The supplementary information should be written in a form that will show the tutor exactly what the student was to have done, the kinds of errors that have previously been identified, and the possible sources of errors. When problem-solving -- such as long division is involved -- the entire solution sequence should be given. The answer sheet, simply scored, or with comments or suggestions for the tutor, is then given to the tutor. The primary function of the tutor is to ask questions, attempting to identify the missing or competing responses, and then, by asking additional, attention-directing or prompting questions, help the student arrive at and practice the correct response or chain of responses. Although the tutee can ask direct questions, ask for information, explanations, or demonstrations at any time, the tutor should avoid telling the tutee an answer, but should attempt to help the tutee arrive at the answer. Unless the specific question that appeared in the test was used as the topic of discussion -- rather than the principal involved -- that same question can be used to evaluate progress when it appears to the tutor that the tutee has achieved the objective.

There are many possible structurings for the tutorial relationship between tutors and tutees, and many options are available to fit local constraints and requirements. Tutors can, in effect, be assigned to a pool from which the teacher can select tutors and assign them to tutees as needed. This approach can be quite impersonal, and although the tutorial interaction need be no less effective in terms of cognitive results, the affective involvement might be significantly reduced. This question, however, needs to be explored experimentally. At the other extreme, tutors and tutees can be assigned to each other on a long term basis, not only for the remedial tutoring sessions, but for other purposes as well; for example, the tutor and his tutee can be scheduled into study or library periods at the same time, so that the tutee can ask the tutor for assistance outside of the remedial setting, whenever he needs help. This again can serve to assist the teacher in providing

such help, and make other assistance available when the teacher might not be. And some tutees might hesitate to seek help from the teacher, but learn to approach the tutor much more readily.

The tutors have to be trained, and provided the opportunity for guided practice, role playing, and regular observations and critiques. The critical measure of a tutor's effectiveness is not simply the extent to which his observed actions conform to a tutor-evaluation check-list, but how well and how much his tutee learns. The design of a training course and a management system are described as part of the model. The tutorial model has a number of procedures built into it to provide for continuing evaluation and modification of the tutoring procedures, management procedures, and training methods, in short, these procedures provide an empirical methodology for continuous improvement of the model itself.

The same tutoring techniques that are outlined in the model can be utilized by parents to provide supplementary remedial tutoring in cooperation with the teacher. The parents would have to be given training-similar to that outlined for student-tutors - and the necessary materials. Both S. D. C. and S. W. R. L. built parent participation into one of their tutoring projects, and both encountered many difficulties. Parents can be effective tutors, but it is often difficult to secure their assistance and participation on any kind of regular basis. One advantage that the use of student-tutors offers the teacher is the amount of control that can be exercised, so that there is greater assurance that the tutoring that is to be done actually gets done. In some school settings, however, the management, scheduling, and tutor-availability problems can be so severe as to make a cross-tutoring project impractical. In that case, parent-tutors offer a reasonable alternative. Tutoring by parents, of course, could not conveniently be scheduled to be performed in the school itself -- except in some rare cases -- and would be designed as "home-work-plus-parental-help." Because of the importance of the remedial tutoring being given as soon as possible after the testing, the test items and supplementary material would probably have to be sent home with the students, and students -- particularly when they do not proceed directly home after school -- are not always reliable carriers of materials from school to home, or vice versa! Consideration of local conditions and the degree of active participation by parents in the support of school activities will generally determine the feasibility of the parent-tutor approach.

Another obvious source of tutors is the teacher's aide or other paraprofessional, where they are available. And some schools can make use of college students majoring in education, during their practice-teaching assignments, or on a volunteer basis; the opportunity to interact with students in a tutorial setting might prove to be the most useful encounter that the teacher-to-be could experience!

## Final Comments

Since the empirical development processes called formative testing , or developmental testing, or validation became a standard part of the development of programmed materials, the use of those methods, along with instructional objectives, have lead to a number of promising developments in education. Programmed materials, in text form, audiovisual form, and even in the form of computer-assisted or computer-managed instruction, have found their way into many schools -- although computer-assisted instruction is still primarily in the early research and development stages. Individualized instruction has also become feasible, and although it takes many forms and functions around many different types of materials and techniques, instructional objectives, criterion testing, and validation are basic elements of most approaches to individualization.

In the early days of research and development in programmed instruction, the principle behind the validation process was frequently described in these terms: "An objective that is not achieved by a student identifies a deficiency in the program, a deficiency indicating that the program needs to be further revised. It should never be assumed that the student is at fault; if the student hasn't learned, then the program hasn't taught." The point of view expressed in that statement is quite different from the usual procedure of assuming that the instruction is flawless and that any resulting deficiencies in student achievement are attributable to the student, and are appropriately reflected in the grade given the student. Since programmed materials are presumably based on specific objectives, and presumably are validated until a reliable high level of attainment is produced, it should be appropriate to expect programs to produce highly predictable results. A joint committee of the American Psychological Association, American Educational Research Association, and the Department of Audiovisual Instruction (of the National Education Association) emphasized that point in a recommendation that potential purchasers of programs examine the objectives and validation data, and reject the program that is not supported by both objectives and data. Only programs can appropriately be evaluated in that way, because most instructional materials are not based on or accompanied by operational definitions or specifications of the desired learning outcomes, or any evidence that those results are attained!

The availability of programmed materials, the methods that produce them, instructional objectives, and validation procedures, have all contributed to the appearance of instructional accountability. One novel application of the accountability principal -- and the first context in which the term was used -- was performance contracting. The first performance contract was issued by the Texarkana, Texas Public Schools to a materials development and publishing firm -- Dorsett Educational Systems. Under the terms of the contract,

Dorsett was to provide instructional materials and use local staffing for a "rapid learning center," in which individualized remedial instruction was to be provided for students assigned to it because of learning deficiencies, primarily in reading and mathematics. Dorsett was not to be paid for providing services and materials; payment was contingent on results, measurable results in terms of improvement of specified kinds in the performance of the students. Gains below a certain level of improvement paid nothing; gains above a certain minimum were paid more or less depending on how long it took to produce them. The educational materials producers have often made extravagant claims for their materials; performance contracting confronts the producer with a "put up or shut up" situation. If the materials are as good as is claimed, then the contractor stands to gain a great deal from a performance contract, and so does the school and its students. Obviously, few contractors will enter into such an agreement unless they have pretty good evidence that their materials actually work. The first performance contract, for less than a half million dollars, was let in 1969; by the end of calendar year 1970, over 100 million dollars in performance contracts had been committed.

In performance contracting, the contractor is accountable for the results of instruction, and must do everything possible and necessary to provide the initial instruction, progress evaluation, and remedial instruction if the first effort does not work. This is true whether the contract calls for the contractor to provide all initial instruction, or only remedial instruction for students who have already failed. From the contractor's point of view, the requirements are the same whether students receive initial instruction or only remedial instruction under the contract; whatever the contractor does first is initial instruction, even though remedial in purpose. The contractor cannot, however, simply provide that instruction, assign a grade to the student, and then move on to a new topic. Diagnostic testing is required, and remedial instruction prescribed on the basis of the deficiencies identified. And one method used by some contractors to provide remedial instruction is the remedial tutor.

Accountability can take many forms other than performance contracting. A school system can establish an accountability approach without any outside contractor being involved. This has sometimes taken the form of teachers being paid a base salary, with cash bonuses being available for both teachers and students depending entirely on student achievement. Diagnostic testing and remedial instruction, usually individualized, and often in tutorial form, play critical roles in this and all other forms of applied accountability.

The number of schools involved in accountability projects, or in individualized instruction -- which also implies some form of accountability -- is increasing sharply, even though the past history of successful efforts is very short. One problem that all schools

face when they become involved in individualization of any sort -- whether large-scale or on a very limited basis -- is that of adequate staffing. Progress evaluation requires more frequent testing, and the tests have to be scored, records kept up to date, and the test results have to lead to appropriate action -- by someone. School budgets, already strained by rising costs, especially labor costs -- teacher salaries -- can rarely be stretched to provide additional teachers or even paraprofessional or teacher's aides of any kind. Student-tutors would seem to be a most promising resource, capable of handling many of the clerical duties as well as the tutorial functions themselves. There is still much to be learned about the potential and the limitations of student-tutoring, and many administrative questions to be answered and problems to be solved. But unless some unanticipated event occurs, flooding the schools with additional teachers or money to obtain additional clerical or paraprofessional staff, the students themselves appear to be the most promising supplementary instructional resource available. The model described in the Appendix is one method for utilizing that resource, and making individualized remedial instruction available as one approach to applied instructional accountability.

REFERENCES

References 1 through 7 are publications of the Youth Tutors Youth project conducted by the National Commission on Resources for Youth, 36 West 44th Street, New York, N. Y. 10036, Mrs. Mary C. Kohler, Director.


1. Supervisor's Manual, 1968

2. A Tutor's Handbook, 1970

3. Final Report, 1969

4. A Manual for Trainers, 1970

5. Tutoring Tricks and Tips, undated

6. You're the Tutor, two versions, 1968, 1970

7. For the Tutor, 1970


These materials are based on a great deal of experience with tutors and by tutors. They are outstanding in terms of their content, particularly the descriptions of activities for tutors to arrange and engage in with the tutees. Inquiries regarding present or projected availability of the materials for general distribution or sale should be addressed to the Director.

References 8 and 9 are publications of the Systems Development Corporation, 2500 Colorado Avenue, Santa Monica, California 90406.


8. Tutorial Community Project, Report of the First Year (May, 1968 - June, 1969), by Gerald Newmark and Ralph J. Melaragno.

9. Systems Approach to Tutoring, brochure describing the approach and a Tutor Training Kit offered for sale. Inquiries should be directed to Education Systems Department, Room 210, S. D. C., address above.


References 10 through 15 are publications of the Southwest Regional Laboratory for Educational Research and Development, 11300 La Cienega Blvd., Inglewood, California 90304.


10. First-Year Communications Skills Tutorial Program: Tutor Trainer's Manual, 1969

11. First-Year Communications Skills Tutorial Program: Teacher's Manual, 1969

12. Steps for Tutors to Follow, undated

13. Practice for Tutors, undated

14. The S. W. R. L. Tutorial Program: a Progress Report. S. W. R. L. Research Memorandum, P12, 1969, by F. C. Niedermeyer and Patricia Ellis

15. The Development of a Tutorial Program for Kindergarten Reading Instruction, 1970, by Fred C. Niedermeyer and Patricia Ellis

Inquiries regarding availability of reports and other materials should be addressed to Mr. Niedermeyer or Miss Ellis at S. W. R. L., address as shown above.

References 16, 17, and 18 are brief, informal descriptions (mimeo) of the E. S. E. A. Title III Cross-Age Teaching Project at the Ontario-Montclair School District, 950 West "D" Street, Ontario, California 91762.

16. Cross-Age Teaching, Evaluation Summary, 1968-1969

17. Cross-Age Teaching, E. S. E. A. Title III, (Project Description) 1969-1970

18. Cross-Age Teaching, Evaluation Summary, 1969-1970

Inquiries regarding these and other project documents should be directed to Mr. John Mainiero, Title III Coordinator, address as shown above, or P. O. Box 313.

The remaining references, which follow, are not part of the materials or reports of the four projects listed above; they are arranged in alphabetical order by author and are referred to in the body of the Report by author and date.

Deterline, W. A. Psychology and instructional technology, in Powers, G. P. and Baskin, W. (Eds.), New Outlooks in Psychology, New York: Philosophical Library, 1968.

Gagne, R. M. What students learn, and how, Sound Education Reports, 1970, I, S.R. 2.

Glasser, W. Designing schools without failure, Sound Education Reports, 1970, II, 14.

Harrison, G. V. Dissertation Abstract, 1969, University of California, Los Angeles.

Homme, L. E. The Programmed Peer/Tutor Relationship, (mimeo), 1964, Teaching Machines, Inc.

Homme, L. E. Personal communication, 1968.

Homme, L. E. How to Use Contingency Management in the Classroom, Champaign, Ill.: Research Press, 1969.

Hilgard, E. R. Theories of Learning, New York: Appleton-Century-Crofts, 1956.

Mager, R. F. and Deterline, W. A. Instructional Objectives, Sound Education Reports, I, 3, 1969.

Premack, D. Toward empirical behavior laws: I. Positive reinforcement. Psychological Review, 1959, 66, pp. 219-233.

Pressey, S. L. A simple device which gives tests and scores -- and teaches, School and Society, 1927, XXIII, pp. 373-76.

Skinner, B. F. Teaching machines, Science, 1958, CXXVIII, pp. 969-77.

White, R. W. Motivation reconsidered: the concept of competence. Psychological Review, 1959, 66, 297-333.

# APPENDIX

## A TUTORIAL MODEL

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Appendix to Final Report, Project No. 9-I-039, Grant No. OEG-9-9-140039-0043(057), U. S. Department of Health, Education, and Welfare, Office of Education Bureau of Research. December, 1970.

## INTRODUCTION

Before reading this Appendix, the reader should read the main body of the Report, especially if he is contemplating the use of this Appendix as a basis for the establishment of a student-tutor project. The Report describes some of the possible advantages of the use of students as tutors. The Report also identifies the source of many of the ideas, procedures, supporting data, and the basis for structuring the tutorial interactions in the form to be described here.

In brief, this Appendix presents a description of a tutorial system that utilizes students as remedial tutors of younger students, and requiring no special instructional materials beyond tests and descriptive scoring keys. A minimum of preparation, tutor-training, materials development, and management is required. A school system should be able to utilize these procedures to implement a student-tutor project without requiring special project funds or staffing.

The model, including the data collection, analysis, and revision phase, is described in terms of suggested steps to be followed. Some of the steps are described in detail, while others are presented as suggestions that can be followed in a variety of ways, depending on local constraints, characteristics of the setting and students, and other factors. In some cases, a step will involve many possible options, all dependent on local considerations, in which case only general guidelines and comments will be offered. For certain steps, the reader will be referred to publications describing one of the projects referred to in the body of the Report. The tutor-training course developed by the Southwest Regional Laboratory for Educational Research and Development, for example, includes many outstanding features, and some of their procedures might be appropriate for inclusion to supplement the minimum procedures outlined here.

## PHASE I: FEASIBILITY AND INITIAL DESIGN

### A. Identifying Constraints

1. The student-tutoring systems involves cross-tutoring -- using students from uppergrades to tutor students in lower grades. It is suggested that at least a four-year grade difference exist between tutor and tutee. Consider a small-scale exploratory study involving only one subject in the tutee grade. Identify the subject and grade by reviewing the subject areas in which students seem to be having the most difficulties and in which the teacher feels that the individual remedial approach would be of greatest value. Obviously this procedure should not be forced on a teacher who is not enthusiastic about the project, especially for this exploratory phase.

2. Identify the grade from which tutors are to be provided. Again, the teacher must be willing to participate and cooperate fully in all aspects of the project.

3. Examine the two class schedules. Can enough minor revisions be made so that tutors can be made available at times when tutees are available? If not, changes must be made in the class selections.

### B. Structuring the Project

1. This project must involve the participation of more than just the two teachers whose classes have been identified; other teachers at the same grade levels -- or levels close to the two grades should participate. Identify the participating teachers. One teacher or member of the administrative staff should be selected to be the project coordinator.

2. Identify the test materials or workbook or practice exercises that are to provide the vehicle for evaluation and tutor guides. Existing materials can be used if available, or special tests and practice problems can be prepared. The nature of the existing materials will determine much of the tutorial activities. If the existing materials involve less than two hours of individual student work per week, then additional materials will have to be prepared. If both practice materials and periodic texts are available and in use, the two most likely types of materials that should be selected for the tutorials are the initial practice materials, those used immediately after the new concept, procedure, etc. is first presented, and the later test materials or practice materials just preceding the test on that same topic. Since this system

is designed to be implemented without major expenditures of time and without full-time staffing, no attempt should be made to design and prepare materials for a full year or even half-year. The project schedule should be designed so that the tutees' teacher can adjust the schedule each week depending on class progress. The practice or test materials should be identified for the first two weeks, and then each week one additional week's materials should be identified and the supplementary materials prepared. In that way a minimum amount of work is required, and materials are always being prepared for use two weeks in the future. The tutees' teacher will have the primary responsibility for identifying and selecting the relevant material.

3. Some practice materials will not require a scoring key or description of the correct answers; simple addition problems, for example, should be well within the repertoires of the tutors. Conceptual answers or problems, on the other hand, might require back-up information for the tutors. Experience over the first few weeks will identify the kinds of materials and problems for which supplementary materials will have to be prepared for the tutors. Examine the materials selected for the first two weeks and prepare supplementary scoring keys as needed.

4. The tutees' teacher should make the decision at this point about the scoring of the materials prior to the tutoring sessions. It is possible to have the tutors score the materials during the tutorials, and indicate on the work sheets or on a special record card, the number correct by each student on the first attempt, prior to the tutoring. In some cases this is an appropriate procedure, but should be used judiciously at the discretion of the tutees' teacher, who should be sure that he obtains all the information that he needs on each of his students. If he chooses to score the materials himself, then the wrong answers should be clearly identified for the tutor. An advantage in having the teacher score the material himself is his opportunity to decide as he does so, which items might require additional information for the tutor.

5. If the available materials are not adequate in kind or quantity, additional materials will have to be prepared. The tutees' teacher will have to specify the nature of the materials to be obtained or prepared. The preparation of practice materials can be done by the tutees' teacher, unless considerable work is involved, in which case the preparation becomes one of the functions of the group of teachers participating in the project.

6. A decision must be made about a cut-off score for each test or practice exercise, below which remedial tutorials are to be assigned. There are many factors to consider at this point. If there are students who are having serious difficulties, who seem

to be examples of the "failure identity" syndrome described by Glasser and discussed in the body of the Report, or who are having continuing difficulties in the subject matter involved here, for any reason, a different approach is required than would be used for less serious difficulties. It is not desirable, however, to provide different approaches within the same class, approaches so obviously different as to emphasize and focus attention on the problem students. If different approaches can be used for different students without allowing the differences to become visible, then it is appropriate to provide closer and more frequent assistance for the students having greater difficulties. One of the differences involves the assignment of tutors; if no serious problems exist, and the main purpose is to facilitate already pretty adequate progress by basically successful students, or students with only minor problems, then the tutors can be assigned from a pool of tutors, to tutees as needed. More serious problems, however, particularly problems of interests, motivation, and self-esteem, benefit from permanently assigned tutor-tutee teams. In a mixed class of tutees, some of whom are basically successful and some of whom are less successful, permanent tutor assignments are probably desirable, again to avoid a too-obvious differential treatment.

If the number of tutors available is large enough, then all students can be assigned as tutees for all tests and practice exercise remedials, except those students who have made no errors at all. If the number of tutors available is more limited, then a cut-off -- say, 80% correct -- should be established. It is suggested that this cut-off be tested experimentally and adjusted as necessary; for example, sometimes careless errors require no remedial assistance beyond identifying them as errors, so cut-off point set too high would identify many students for remedial instruction who have made only a few minor and careless errors. A test should be given at least once every two weeks, and, if possible, one per week is even better. More frequent testing, at an appropriate level of difficulty, is highly desirable because deficiencies can be identified more promptly and the remedial instruction is then even more helpful. When tests are developed locally to increase the number and frequency of tests, attention must be given to the question of the possible need for supplementary information about the correct answer for use by the tutors.

7. If time allows, for each test -- but not for workbook or other practice materials -- a parallel test should be developed. This second test should consist of items testing the same objectives tested by the first test. The tutor, after providing the remedial tutoring, should then walk the tutee through the second test. This provides a progress evaluation check, additional practice, and additional remedial assistance if necessary. The Tutor Record

Card (see below) should contain entries for the tutor to complete, indicating any errors made or additional assistance required on any items on the second test.

8. A Tutor Assignment Form must be prepared. If permanent tutor-tutee teams are assigned, then the form need contain only the tutors' names in the left-hand column, with a row of boxes beside each name. The most convenient and easiest to use format and method makes use of a form as follows:

| Date / Tutor | 3/4 | 3/6 | 3/8 | 3/11 | 3/13 | 3/15 | - - - - | Tutee |
|---|---|---|---|---|---|---|---|---|
| Smith | ○ | ⊖ | | | | | | |
| Jones | | | | ⊕ | | | | |
| - | | | | | | | | |

On the dates indicated, assuming that the teacher scores each of the tests or exercises, and that a cut-off point is used, the teacher simply puts a circle -- as shown for 3/4 for tutor Smith -- in the box if remedial tutoring is to be given that day by that tutor. If tutees are assigned to different tutors at different times, the name of the tutee for that day or for the current period can be entered in the right-hand column. Obviously, if tutees are permanently assigned to tutors, no tutee's name need be indicated on the form. The file of tests or answer sheets or practice materials should be available near the Tutor Assignment Form. When the tutor arrives, he checks the Form, picks up the materials, and draws a line through the circle entered by the teacher, as shown for 3/6 for tutor Smith. Upon completion of the tutorial and the second test, he returns the material to a second, completed materials folder, and adds a second line inside the circle to make an X, as shown for 3/11 for tutor Jones. This visible record is convenient for the teacher, who can quickly determine who has not yet begun the tutoring session, what sessions are in progress, and which have been completed.

A more elaborate form can be designed if topics are to be identified for special attention by the tutor. The folders of materials for the tutors should involve no particular problems. The folders are used in exactly the same way whether the teacher scores the test or whether the tutors perform that task. The Tutor Record Card can be a re-usable card with rows of entries on which the tutor simply writes the number of any test item or

problem on which the tutee had unusual difficulty that day. All the tutor need do is enter the date, and then, as the session is conducted, enters the numbers of the items missed or which involve difficulties. If desired, a new Tutor Record Card -- which need not be a "card" but simply a mimeographed 3" x 5" or other small piece of paper -- can be used each day, with entries for the tutor's and tutee's names, date, title of the test or exercises, and items missed on the second test, items that proved difficult for the tutee, etc. These forms should be designed in minimum form; that is, containing entries only for the minimum required information, that which be useful and will be used by the teacher. The errors made during the tutorials and on the second test, for example, will identify students who need additional remedial attention by the teacher. Presumably, the student-tutors will free the teacher from much of the group and individual remedial, so that he can deal individually with only the more severe problems.

9. Basically, the steps described above identify the necessary minimum components of the tutorial system. There are, however, certain management, administrative, and support functions that must be designed in some detail. Before considering those, however, there are some "public relations" requirements to be considered, as well as the tutor-selection procedures. First of all, consider the tutor-selection procedures. There are generally two quite different bases for selecting tutors: one, identifying only the better students in the class that is to serve as the source of tutors; second, selecting poorer students for the practice they will receive from the tutoring and for the affective benefits of being the more knowledgeable individual in the tutorial relationship. Schools and students differ in so many ways in so many different settings, that only very general guidelines can be offered. The following factors must be taken into consideration:

a. In the class from which potential tutors are to be selected, the better students are generally more likely to have more time available from their own studies, although this is not always so, since they also tend to be more active in extra-curricular activities, and the so-called "over-achiever" might be a better student only because he spends a great deal of time and expends considerable effort studying. The poorer student, on the other hand, will generally not have as much time to spare even though he might spend very little time on school subjects. Also, in the case of the lower-achieving student, there is a question of the appropriateness of assigning him to any activities other than those relevant to his own courses. His parents, too, might raise this question, and might object strongly. This problem will be discussed below, as a "public relations" problem. One relevant consideration is the finding, in some other

tutorial projects, that poorer students acting as tutors tend to show gains in the subject matter they tutor, and to show improvement in attitudes, conduct, etc. For this initial, exploratory phase of the project, it is suggested that extremely poor students not be selected as tutors, although if a student has his major difficulties in only one subject -- the one selected for the tutoring project -- he could appropriately be selected to be a tutor. Students performing below grade level, but only slightly so, can be selected to be tutors. If the entire project is so-administered as to make the role of tutor one that is highly prized, then that assignment can be used as an incentive (See "contingency management," below).

b. If only poorer students are to be used as tutors, the tutoring procedures should be a bit different than those used by the better students. The two different sets of techniques are described in the "tutor behavior" section which follows. Here again, if both better and poorer students are to be used as tutors, communication between them will quickly indicate to the poorer students that they were taught more mechanical procedures and are permitted fewer options of their own.

c. The project must be "sold" to the students who are potential tutors. They should not be assigned involuntarily to tutoring assignment. The project must be described to them, including some detailed descriptions of what will be required of them in terms of training time, tutoring time, record keeping, etc. The tutoring tasks should not be made to sound more enjoyable than they can possibly be, and "too-flowery" selling points -- e.g. "the great joy and satisfaction that comes of helping others" -- should be avoided. If a contingency management system can be arranged, so that the tutors can earn access to certain preferred activities, such a system should be established. The students, prior to being asked to volunteer, should be given realistic descriptions of exactly what is involved, and what consequence will be available, and what they might be expected to gain from participation.

d. Students who volunteer to be tutors should not be accepted on the spot: their teacher should decide whether participation as a tutor should be made contingent upon certain standards of performance, assignments, or conduct, and whether there are any reasons why a given student's participation would not be desirable. Ordinarily the teacher can expect more students to volunteer than can be effectively used at least during this exploratory phase, so some selection options are readily available. A student's schedule, work load, and extra-curricular activity schedule should be considered. Parental permission will be discussed below.

e. It is generally a good idea to select more tutors than are needed. Tutors will sometimes be absent, or will transfer, or will drop out of the program. Some tutors might have to be assigned to other tasks if it later becomes apparent that they are not very effective tutors. The possibility of using the tutors for other purposes should also be considered. The tutee load will fluctuate from time to time, and sometimes it will be desirable to assign a tutor to provide special assistance for make-up purposes after a tutee has been absent -- this option will also be discussed below. When the number of tutees requiring tutorial assistance is relatively low, or when the number of tutors available is higher than the tutorial sessions required for any reason, the tutors might be used to help score tests and other work, help plan and develop additional remedial activities and tasks for later use, etc. Care must be taken never to assign aversive "busy work" to tutors; that was not what they volunteered for or what they expected. Assigning them to unpopular tasks that they did not volunteer to do can quickly undermine the entire project. If the use of tutors for other, supplementary tasks is contemplated, that should be arranged on a separate volunteer basis, and again, contingency management should be utilized if possible to provide some form of incentives that the tutors can earn by performing those ancillary activities.

10. The location for each tutorial session must be scheduled in advance, and if possible, should not be changed for any one tutor-tutee team; they should always meet in the same place, and if possible, always at the same time each day. For convenience of class scheduling it is almost a necessity that teams meeting on any given day all meet at the same time, probably while their non-tutoring or non-tutored classmates are engaged in other independent study. It is obviously <u>not</u> desirable to schedule tutoring sessions during highly preferred activities of any kind; that is, neither tutors nor tutees should be penalized by having to attend a tutoring session instead of a preferred activity occuring at the same time, and because the tutors and tutees have to talk to each other and are unlikely to remember to whisper or talk softly, only a few teams should be assigned to a room, and widely separated. Space assignments, room availability, and teacher-monitor availability can be major problems. The teams should generally not be assigned to work in rooms in which other students are studying, because the tutoring can bother those students, and if the other students involved in activities other than studying, that can distract the tutor or tutee. As many as ten or more teams can be assigned to work in the same relatively medium size classroom, laboratory, study room, etc. although students may require a few sessions to adjust to the possibly distracting discussions going on around them. Certain schedule modifications might be required in order to make one of the participating teachers available as a monitor for each of the rooms in which teams are meeting.

11. "Public relations" was referred to above in relations to parents, and is also important in relation to the tutees, the tutors, their classmates, and members of the school staff. The project should not be referred to as a remedial activity. The project can be given any of a number of labels referring to individualized student-tutoring. The emphasis should be placed on the individualized nature of the tutoring. Parents of tutors, tutees, and possibly of their uninvolved classmates should be given information about the project, and it is desirable to ask for written permission by parents for participation as tutors, and possibly as tutees. The project should be described at P. T. A. or other meetings, with stress on the exploratory nature of the project. Expected benefits described in the body of the Report should be discussed, including emphasis on the advantages for the tutors -- one of which is learning by teaching. The possibility of enlarging the scope of the project following the exploratory phase should be mentioned, along with the relevance of the same tutoring techniques for use by parents who want to provide additional assistance for their children; although this phase would come much later. The entire school staff -- and particularly the project staff-should avoid referring to the project as remedial, or being aimed at the poorer students, or any other frame of reference that would make participation something to be avoided. When the project is first described to the entire class from which tutees will be assigned, emphasis should be placed on the fact that older students are going to help them with their practice work and go over their tests with them. And basically, that should be the primary emphasis. Nothing need be said about errors, problems, deficiencies, remedial, etc. The same point is relevant to the initial description of the project given the group of potential tutors; they should view the project and their participation as involving assistance and teach- rather than diagnosis and remediation.

## PHASE II: TUTOR TRAINING

### A. Designing the Course

1. There is little value to telling a tutor-trainee what tutoring is all about. He needs to be shown, and to attend to and respond in some manner to the critical components of what is shown to him. Very little introduction should be provided in the form of a lecture. If desired, certain features of a tutorial can be described, such as: helping tutees arrive at answers rather than simply telling them answers, helping tutees practice the correct answers, asking questions as a method of prompting the tutee, asking questions as a method of determining what the tutee cannot do, etc. It should be remembered that the tutor's role here is not to present new information or explanations, but to identify problems and give only the minimum information that the tutee needs. Prepare an introductory description of the project telling the tutors only those things that are relevant from their point of view, along with a brief description of what tutoring consists of in this project. Limit these introductory remarks to 15 minutes, maximum.

2. Arrange two brief presentations, one consisting of a brief lecture explanation by a teacher to a student, and the other a tutorial demonstration to emphasize the differences between the two methods. There are two possibilities here for the tutorial demonstations, and either or both can be used. The initial demonstration might consist of a teacher as the tutor, and another teacher role-playing the tutee's role. This procedure, if used, should not be done extermporaneously, but should be rehearsed and based on a script outline. Each of the tutor behaviors to be described in a later section of this should be demonstrated. A second demonstration of the tutorial method can then be given, with a teacher as tutor, and a "real student" as the tutee. One precaution: teachers typically develop most of their teaching skills in relation to the group classroom and groups of students, and have relatively little opportunity to develop tutoring skills. Because this demonstration is critical, the teacher acting as the tutor should practice using the techniques described below, including doing so while being observed by other teachers using the Tutoring Checklist (also, see below). This is necessary because unless the teacher-tutor demonstrates the same techniques that the student-tutors are to learn, the overall effect could be quite confusing. In other words, if the teacher-tutor draws on considerable teaching experience and does far more than the tutors are to learn to do, utilizing a variety of techniques that are beyond the student-tutor scope of this project, the student-tutors will develop an incorrect and unrealistic idea of the scope of their tutor-

ing activities.

3. After designing the one or two tutoring demonstration, review the design of the demonstrations. From the list of procedures described below as tutor behaviors, prepare a Tutoring Checklist ( a basic form is described below; other relevant, desired behaviors can be added to the list). Compare the Checklist with the script for the simulated (teacher role-playing a student) tutorial if that method is to be used. Be sure that every behavior appearing on the Checklist is built into the script; revise and expand the script if necessary. Prepare a brief description and explanation of each of the steps appearing on the checklist.

B. Presenting the Course

1. The first component of the first tutor-training session is the introductory information described in step 1, above. The second component is the Tutoring Checklist. A copy is to be distributed to each tutor-trainee. After the copies have been distributed, a brief explanation of each step is to be given. The outline for the explanation should be prepared as a lesson plan in advance. This explanation of the Checklist should take no more than 15 minutes ( if for any reason other descriptions or explanations are to be given, the same rule should apply, minimizing the length of any information presentations). Prepare the lesson plan for the description of the tutoring checklist.

2. After the initial orientation and the distribution and explanation of the Tutoring Checklists, the third component is the tutoring demonstration (or demonstrations). Tell the tutor-trainees to look for examples of each tutor behavior described on the Checklist. Caution them, however, to pay strict attention to the demonstration, and not to refer to the Checklist as they observe. The demonstration, utilizing the same kinds of materials -- tests or exercises -- that they will use, should last about ten minutes.

3. Immediately after the first demonstration ask the tutor-trainees to use the Checklist as a guide and try to remember at least one observed example of each of the behaviors listed. Give them a few minutes to write brief descriptions of each of the behaviors they observed.

4. Have them discuss their descriptions. Do not tell them what they should have observed and described. Ask each student in turn to tell the group what he wrote down as an example of a behavior on the list. Let the group critique each example given by one of their number. Let each tutor-trainee describe at least

one of his descriptions. Let the group handle the discussion all by itself as much as possible. When necessary, attempt to help them by using the same techniques that are described on the Checklist; in other words, if a controversy develops over what was or was not observed, direct their attention by asking prompting questions, and help them resolve the problem that way. And then point out the technique that you used! Unlike the information presentations, the discussion period should have no time limit imposed on it. The tutor-trainees should be given as much time as they need for discussion and comparing notes on what they observed. When the teacher or teachers conducting the meeting are asked direct questions, the questions should be answered. If a student asks for a second demonstration of some procedure, that part of the demonstration should be repeated, and, if it seems to be appropriate, the teacher should tell them in advance what to look for. Then again, after the demonstration, ask a student to describe what he saw, and ask the other tutor-trainees to add to his discussion, disagree, etc. At this point you want to encourage active participation -- relevant active participation.

5. When the discussion appears to have been completed, ask if there are any questions. If so, answer them. Then ask the tutor-trainees to look over the Tutoring Checklist again, and tell them to ask any other question that occur to them about any of the items on the Checklist. Answer those questions.

6. Present the second demonstration, if one is to be given -- and this is an option that is highly recommended, if at all possible to arrange. Then repeat steps 3, 4, and 5 for the second demonstration. After the completion of step 5 for the second demonstration, ask if there are any remaining questions about the project, their involvement, or the training. After the questions have been answered, end the meeting, having indicated where and when the second training session will be held.

7. The second training session consists entirely of role play practice for the tutor-trainees. An ingenious procedure, first used for the training of student tutors (to the best of my knowledge) by Fred Niedermeyer and Patricia Ellis at the Southwest Regional Laboratory for Research and Development, is recommended for the role play practice. A series of practice examples is provided, starting with very simple and obvious problems, and gradually getting more complex. The tutor uses the same kind of materials that he will use during the actual tutoring session, plus a "job aid" consisting of a list of relevant questions from which he can select those he feels will be helpful. The tutee -- a tutor-trainee assigned to role play the tutee -- has a stack of cards, each of which describes a response. The tutee's "Response Indicator Cards" can be arranged

in a predetermined order, or can be shuffled so that a random sequence of responses will be indicated. The Response Indicator Cards should include the following:

GIVE THE RIGHT ANSWER TO THE TUTOR'S QUESTION. The tutor should tell you that you are correct. If he does not do so, remind him.

TELL THE TUTOR THAT YOU DON'T UNDERSTAND, NO MATTER WHAT HE TELLS OR ASKS YOU. He should not frown or act annoyed. He should ask other questions that explain his question, and help you answer it. If he does not do so, remind him.

GIVE A WRONG ANSWER. The tutor should not act annoyed. He should ask you to tell him why you answered as you did. Make up an explanation of your answer. He should ask questions that help you discover what is wrong about your answer and your explanation. If he does not do so, remind him.

GIVE WRONG ANSWERS TO THREE QUESTIONS IN A ROW. He should ask you each time to explain your answer, and should ask questions that help you see what is wrong! If he does not do so, remind him.

INTERRUPT HIM AND ASK HIM TO SHOW YOU HOW TO ANSWER THE QUESTION OR WORK OUT THE SOLUTION. He should then tell you to repeat the same steps and should help you when you ask for it or hesitate. Ask for help once, and stop and wait for help once. If he fails to show you and then tell you to repeat what he did, remind him; if he fails to provide help when you ask or wait, remind him. TELL HIM THAT YOU DO NOT UNDERSTAND THE QUESTION. He should not explain the question; he should rephrase it or ask a simpler question. If he does not do so, remind him.

DO NOT ANSWER HIS QUESTION. TELL HIM THAT YOU THINK YOU KNOW WHY YOU WERE INCORRECT BEFORE. He should immediately ask you to explain the test question or practice problem -- do so, correctly. If he does not immediately do so, remind him. When you explain the problem correctly, he should tell you that you are correct. If he does not do so, remind him.

Each set of Response Indicator Cards should contain several duplicates of each of these cards, plus others that you should design to fit the requirements of the test or practice materials. A standard

direction for the tutees is as follows:

THE TUTOR SHOULD NEVER HELP YOU BY TELLING YOU SOMETHING EXCEPT IN ANSWERING A DIRECT QUESTION BY YOU, OR WHEN TELLING YOU THAT YOU ARE CORRECT, OR PRAISING YOU FOR PROGRESS. WITH THOSE EXCEPTIONS, THE TUTOR IS ALLOWED ONLY TO ASK QUESTIONS, NOT TO GIVE YOU DIRECT INFORMATION.

This rule, quite simple and direct on the surface, is the basis for the entire tutorial procedure, but will be broken many times by the tutors, even after they have developed a high level of skill. Here are some examples:

Student pronounces "FATE" as "FAT." Tutor: (Writes, F-A-T) Well, then what is this word? Or, "How many vowels do you see in this word?"

Student, adding 17 and 25, writes 2 under the tens column, but forgets to carry one. Tutor: "What is seven plus five?" Or, "Seven plus five is 12; you wrote down the 2 from the 12, but what did you do with the one?"

Student, when asked, "Who was the first man to sail around the world (or 'circumnavigate the globe' -- which has always been the terminology used to ask that question)?" says that he does not know. Tutor: "Alright, listen to these names and tell me, which name is the name of that man."

Student says, "I don't see anything wrong with that (previously given) answer. What is wrong with it?" Tutor: "Why do you think it is right? Explain it to me."

Student gives a wrong answer: for example, six times eight is 56. Tutor: (attempting to determine what products are part of the student's repertoire) "What is four times eight?" If answer is correct -- "Very good. Now, look at this -- four times eight is 32. What is five times eight? It should be eight more than four times eight, right? What is five times eight?" If the answer is correct, "Good. Four eights are 32, five eights are 40. Six times eight is eight more than five times eight, right? So what is six times eight?" If the first answer was wrong, the tutor might attempt to have the tutee arrive at six times eight through a series of addtions. If the second question was answered incorrectly, the tutor might say, "Four times eight is 32. Five times eight is eight more than 32, right? Do you see why? Explain why five times eight is eight more than four times eight." That last question might be too complex, even for a student who could answer it in a more simplified form.

The rule about asking questions rather than giving direct information should be described briefly prior to the demonstrations during the first training session. Examples of questions asked should be pointed out during the discussions, and so should any inadvertent violations of that rule. The rule should be mentioned briefly at the beginning of the second training session, as a reminder. Students should then immediately be assigned to teams, and one member of the team identified as the tutor for the first few problems on the answer sheet that has been prepared for this session. The tutee is given the stack of Response Indicator Cards, and the tutors are told to begin. In addition to the Response Indicator Cards, the tutee is given a larger card to place in front of him; this card has the "question only" rule printed on it. All teams should be allowed to proceed through three or four problems, then the roles should be reversed and three or four more problems worked through. A project teacher should observe each tutorial team and make entries on the Tutoring Checklist, putting an "X" in the appropriate box each time the tutor makes one of the specified "appropriate responses." At the bottom of the Checklist a larger space should be provided in which the observer can make a note of each violation of the "questions only" rule. After each member of the team has had a chance to tutor his teammate on at least three problems, the observing teacher should present a brief critique, emphasizing everything that was done correctly, but pointing out obvious errors. The immediate feedback from the tutee, plus the critique, is an effective method, and the tutee becomes quite alert to violations of the "questions only" rule. The practice looking for those violations by his tutor tends to transfer to the situation in which he is the tutor, so that he will frequently discriminate his own error, and correct it. With practice he learns to anticipate that error, "seeing it coming" and correcting himself in time to prevent the error.

Immediately following the critiques by the observing teachers, a brief general discussion should be held, only to the extent that the tutor-trainees keep it going. Then a second practice session should be held, using the same role play procedures, the Response Indicator Cards, and observations by teachers using the Tutoring Checklist. The same procedures should be used, but this time the observing teacher and the tutee should critique the performance of the first tutor before the roles are switched. After the first critique, the two tutor-trainees should switch roles, the second tutor should conduct a tutorial, and then his performance should be critiqued by the teacher and tutee. After a final general discussion, the second session should be terminated.

8. Prior to the third training session, a project staff meeting should be held. Ideally the staff meeting should be held no more than one

praise the tutees -- in addition to identifying each correct response as correct -- frequently during each session, but the praise should be made contingent upon a major step forward or for a series of correct responses, or for continued attention and cooperation. Praise that is simply presented without any obvious relationship to tutee responses or activities is worth little to the tutee. And any praise should be presented quietly, with a smile, and without "gushing" or overstatement. The tutee, it should be remembered, is observing the tutor and is forming opinions about his tutor, opinions that will affect his interaction with the tutor. The tutor's credibility in the eyes of the tutee is quite critical; the fact that the tutor is bigger and older, and more competent is not enough to maintain rapport or a working relationship with his tutee. Only a minimum amount of advice and suggestions should be given at this meeting, so the tutors will not be confused or overcome by too much well-intended information about the tutees. If time is available this training session might be allowed to run on as long as the tutor-trainees continue to ask questions or for as long as they want to talk about the project or any related topic. The tutor-training is completed with the conclusion of this meeting.

## PHASE III: IMPLEMENTATION

1. The first meeting between a tutor and his tutee is a critical step. The tutors should not all be assigned to begin tutoring on the same day. If possible only that number of tutors should be scheduled for whom an observing teacher can be assigned. All teachers who are part of the project staff should have participated in the training session, and particularly the role play practice, as observers. These same teachers should now be used as observers during the initial tutor-tutee meetings. The observing teacher should not participate, but should simply observe. The tutors should have been told, during the final training session, to concentrate on conversation and learning about their tutees during this first meeting. Toward the end of the meeting the tutor should do some tutoring, using the procedures and following the rules that he has learned, but very casually, without haste or pressure. There should be no attempt to complete all of the materials that first day. The tutee's teacher, following whatever approach was used in the past, will provide feedback to the students; this first tutoring session is primarily for the tutor and tutee to become acquainted and for some minimum practice tutoring. After the tutee has gone back or been taken back to his classroom by the tutor, the observing teacher and the tutor should discuss the meeting, and the teacher can provide a brief critique. A meeting of the project staff and the tutors who met their tutee for the first time should be held at the end of the tutoring sessions, at the end of the day, or whenever such a meeting can be arranged. The tutors should be encouraged to share their experiences, discuss them, ask questions, identify problems, and seek help on whatever problems are bothering them. At this point they have, after all, met the tutees and have attempted to establish rapport and have performed the role of tutor, probably for the first time. No amount of role play or descriptive information can completely prepare them for that first encounter. During this meeting, if time allows, the teacher-observers might also contribute, making suggestions on the basis of their observations. If enough observing teachers were available so that all tutors met their tutees for the first time on the same day, then this meeting need not be repeated. But if the tutors had to meet their tutees a few at a time over several days, then a meeting should be held each day, with those tutors who had their first meeting that day.

2. The tutees' teacher and the tutors' teacher will have to establish a procedure for regular and frequent communication. It is the responsibility of the tutees' teacher to tell the other teacher how many or which tutors are needed each day, or each day on which tutoring can be scheduled. Sometimes other scheduling requirements will make it impossible for the teacher to administer the tests, provide time for classwork on the materials, or even to assign materials as homework. Or the teacher might not have time to do the scoring that must be done, or to arrange the folders, or identify the tutees who need

day after the second training session, and the third session one day later. All teachers and administrative members directly or indirectly involved should be invited. At this meeting all final administrative, scheduling, record-keeping, public relations, and other problems must be resolved. The room assignments and other space requirements must be arranged for in final form. Schedules must be developed for the teachers who are to monitor the rooms in which the tutoring sessions are to be held. All forms that have to be duplicated and distributed to teachers should be distributed at this time, or their location indicated. Each monitoring teacher is expected to spend at least a part of his time observing tutors and making entries on the Tutoring Checklist. Each tutor should be observed in this way at least once each week once the regular tutoring sessions. General guidelines should be written for the observation procedures, and at this meeting those guidelines should be distributed and discussed. Project staff and school administrative staff should be invited to observe at any time, but to follow certain procedures to avoid disturbing, interrupting, or distracting the tutors or tutees. These procedures should be part of the set of guidelines.

Following the larger meeting, the teachers involved in the tutor-training sessions should meet as a group to discuss the results and problems observed during the second training session. At this time, decisions should be made regarding the third training session and any modifications suggested by the observations during the second training session.

9. The third training session begins with explanations of the "housekeeping functions," including the procedures to be followed by the tutors in going from own assigned room to the room to which each is to meet his tutee. There are advantages to having the tutors' teacher send them, four at a time, to the tutees' room. As each tutor arrives, he checks the Tutor Assignment Form, collects the necessary materials from the folder, and he and his tutee then proceed to the room assigned for their tutorial sessions. At the third tutor-training session a dummy set of materials should be explained, and the tutor-trainees should have an opportunity to examine the materials, the folders, the Tutor Assignment, and should be shown how to make entries in the Form and how to complete the Tutor Record Cards. The return procedures should also be described, stressing the point that no fixed time is specified for the tutorial session; the sessions should be terminated when either the tutor or tutee begin to tire noticeably, or when the tutor is satisfied that the student has achieved the objectives (or when he feels that no progress is being made), or when the available time period is drawing to a close. The return procedures also include completing the entry

on the Tutor Assignment Form, completing the Tutor Record Card, and returning the Card and all materials to the place designated.

A summary critique of the second session role play should then be presented, based on the discussion held at the staff meeting. All comments critical of what was observed should be expressed in terms of the difference between desired and actual performance, and the changes that should be made. Following this critique additional practice materials should be distributed as was done for the role play practice during the second session. The same, or new pairings can be used; an observing teacher should observe, using the Checklist as before. The role play should be conducted as before, and critiqued.

10. A fourth session should be scheduled for no later than a few days following the third session. Four training sessions are suggested because it is generally easier and more convenient to schedule four short -- less than 45 minutes -- meetings than a smaller number of longer meetings. If time availability and constraints permit, a smaller number of training sessions can be scheduled, but it is not advisable to break the training into any larger number of meetings. The tutor-trainees should be told at the end of the third training session that the role playing has been completed and that the fourth session will be about more general methods having to do with the nature of the tutees and how the tutors are to treat them. Some of the questions discussed as part of tutor-training for other projects, and suggested for use here are: What are ____ graders like (the tutees' grade level)? What did you like to do when you were a ____ grader? What didn't you like to do? If you know any ____ graders -- including your brothers or sisters -- think about what they do that you like and don't like. Try to remember what you thought about older students -- like you are now -- when you were a ____ grader. Have the group discuss these questions and have the tutees' teacher participate and tell the tutors a little about what to expect the tutees to be able to do or not be able to do that could be relevant. Tell the tutors how the initial meetings are to take place. Presumably the tutee's teacher will introduce the tutor and his tutee. Describe some general kinds of conversational questions that the tutors might use to put the tutees at ease and establish at least an initial degree of rapport. The tutors should be told the obvious -- smile frequently, be pleasant, talk with the tutee as a friend rather than as a superior, try to avoid expressing any impatience or annoyance when the tutor makes an error or when progress appears to have stopped, etc. At the beginning and at the end of each tutoring session the tutor should engage the tutee in conversation aimed at finding out what the tutee likes to do, what he thinks about, and so on. The tutors should be told to

praise the tutees -- in addition to identifying each correct response as correct -- frequently during each session, but the praise should be made contingent upon a major step forward or for a series of correct responses, or for continued attention and cooperation. Praise that is simply presented without any obvious relationship to tutee responses or activities is worth little to the tutee. And any praise should be presented quietly, with a smile, and without "gushing" or overstatement. The tutee, it should be remembered, is observing the tutor and is forming opinions about his tutor, opinions that will affect his interaction with the tutor. The tutor's credibility in the eyes of the tutee is quite critical; the fact that the tutor is bigger and older, and more competent is not enough to maintain rapport or a working relationship with his tutee. Only a minimum amount of advice and suggestions should be given at this meeting, so the tutors will not be confused or overcome by too much well-intended information about the tutees. If time is available this training session might be allowed to run on as long as the tutor-trainees continue to ask questions or for as long as they want to talk about the project or any related topic. The tutor-training is completed with the conclusion of this meeting.

## PHASE III: IMPLEMENTATION

1. The first meeting between a tutor and his tutee is a critical step. The tutors should not all be assigned to begin tutoring on the same day. If possible only that number of tutors should be scheduled for whom an observing teacher can be assigned. All teachers who are part of the project staff should have participated in the training session, and particularly the role play practice, as observers. These same teachers should now be used as observers during the initial tutor-tutee meetings. The observing teacher should not participate, but should simply observe. The tutors should have been told, during the final training session, to concentrate on conversation and learning about their tutees during this first meeting. Toward the end of the meeting the tutor should do some tutoring, using the procedures and following the rules that he has learned, but very casually, without haste or pressure. There should be no attempt to complete all of the materials that first day. The tutee's teacher, following whatever approach was used in the past, will provide feedback to the students; this first tutoring session is primarily for the tutor and tutee to become acquainted and for some minimum practice tutoring. After the tutee has gone back or been taken back to his classroom by the tutor, the observing teacher and the tutor should discuss the meeting, and the teacher can provide a brief critique. A meeting of the project staff and the tutors who met their tutee for the first time should be held at the end of the tutoring sessions, at the end of the day, or whenever such a meeting can be arranged. The tutors should be encouraged to share their experiences, discuss them, ask questions, identify problems, and seek help on whatever problems are bothering them. At this point they have, after all, met the tutees and have attempted to establish rapport and have performed the role of tutor, probably for the first time. No amount of role play or descriptive information can completely prepare them for that first encounter. During this meeting, if time allows, the teacher-observers might also contribute, making suggestions on the basis of their observations. If enough observing teachers were available so that all tutors met their tutees for the first time on the same day, then this meeting need not be repeated. But if the tutors had to meet their tutees a few at a time over several days, then a meeting should be held each day, with those tutors who had their first meeting that day.

2. The tutees' teacher and the tutors' teacher will have to establish a procedure for regular and frequent communication. It is the responsibility of the tutees' teacher to tell the other teacher how many or which tutors are needed each day, or each day on which tutoring can be scheduled. Sometimes other scheduling requirements will make it impossible for the teacher to administer the tests, provide time for classwork on the materials, or even to assign materials as homework. Or the teacher might not have time to do the scoring that must be done, or to arrange the folders, or identify the tutees who need

tutorial assistance. When this occurs that teacher should notify the tutors' teacher, and indicate the day or date on which tutors will be needed. It is the responsibility of the tutors' teacher to report tutor absences to the other teacher, so that between the two of them, appropriate substitutions or re-scheduling can be accomplished. The tutors' teacher is also responsible for telling the tutors when they are to meet with the tutees, and to see to it that they go to the appropriate place at the proper time.

3. A project schedule should be prepared, scheduling the teachers as classroom monitors, and indicating which tutor or tutors are to be observed during that period. The individual assigned to be project coordinator is the person to whom the Tutoring Checklists should be sent. That individual, or a group of which he is a member, should regularly -- once a week -- meet to review the Checklists, looking for any evidence that a tutor might need remedial guidance or more training. Any other problems that can be identified should be discussed, any action to be taken should be decided upon and then carried out.

4. During the first few days, or even weeks, a certain amount of confusion and unanticipated problems should be expected. The actual tutoring sessions should run pretty well, with only minor problems developing. But the administrative, management, scheduling of teachers, meeting rooms, and tutors and tutees, and other necessary support functions will run into difficulties of various kinds. Whatever the problems, everything should be done to avoid having to cancel tutoring sessions. The project staff involved in the preparation of study materials, practice exercise problems or test items will have to stay ahead of the class schedule, and all necessary typing, duplicating, collating, and distribution will have to be accomplished on a strict time schedule. It is very undesirable to have to suspend the project for administrative or other reasons, even temporarily. Once launched, the project activities should be kept on schedule; the classroom schedule will go on, and cannot be disrupted because of problems with the tutoring project!

5. During the course of the project the tutees' teacher should keep complete records of all test scores and other performance data. If time permits, available standardized tests -- in the subject matter on which tutoring is being done -- should be administered periodically. If an appropriate "control group" is available, the same tests should be given to those students, so that later comparisons can be made and evaluated. Consideration should be given to the use of attitudinal measures and tests purporting to measure "self-esteem" and "attitudes toward school," etc. The assistance of a test specialist should be sought for this purpose.

6. The tutors should not be overlooked. Their teacher should keep careful track of their progress, and if the tutoring activity appears to

take more time than a tutor can spare from his own work, his involvement should be reduced or terminated. A testing program should be arranged so that if any affective or cognitive changes are taking place, possibly attributable to their participation as tutors, they will be identified.

7. The tutees' teacher, possibly with the assistance of one or more project staff members, should review each tutee's work and the related Tutor Record Cards. If the tutor has indicated that the remedial instruction did not adequately prepare the tutee for the second test, as indicated by the tutee's responses to those test items, the teacher may want to schedule a meeting with that tutee for additional remedial activities.

8. The initial assignment of tutor and tutees should not be considered to be permanent and sacrosanct. If a tutor is not effective, and critiques and other feedback do not seem to correct the problem, he should probably be relieved of his tutoring assignment. There are many possible reasons why a particular tutor-tutee pairing might prove to be unsatisfactory. A personality clash can develop, even where very young children are involved. The tutor and tutee might "bug each other" in any of many possible ways. According to some project reports, tutor-tutee teams should be either boy-boy or girl-girl, but sometimes it is not possible to match tutors and trainees by sex, and sometimes that causes problems of communication and rapport. Siblings should probably not be assigned to the same tutor-tutee team. Brighter tutors should probably be assigned to brighter tutees, less bright tutors to less bright tutees.

9. Occasionally an observing teacher will observe a tutor giving incorrect information. Two procedures are recommended when this occurs. The teacher should not interrupt to correct the error. After the session is ended, he should discuss the error with the tutor and direct him to go immediately -- if possible -- to the tutor to correct the error. This avoids undermining whatever confidence the tutee has developed toward the tutor, The second step consists of having the tutor's teacher evaluate the tutor's competence in the subject, in relation to the study materials that are to be used by the tutees in ensuing weeks. If the subject matter is one in which retention of rote memory items -- names, dates, etc. -- is involved, it is possible that some of the tutors have already forgotten that information and those associations. The scoring keys and written discussions of the answers, described earlier as one of the supplementary materials that might have to be prepared for use by the tutors, are designed to solve this problem. The "questions only" rule was also established in part to prevent the tutor from presenting misinformation or garbled information.

10. The possible problems, hinted at darkly above, are an expected part of any new and innovative project. They can all generally be re-

solved, and the system should quickly develop and run smoothly. The materials and forms should be revised if for any reason they interfere rather than facilitate, and the same is true of any procedure or method. If the tutor-training course does not appear to produce the tutoring behaviors that make up the course objectives, then the course should be changed. The project should be considered a research and development project. The research can be conducted informally, as an exploratory study, and the development refers as much to the development of effective methods as it does to the development of effective materials. The test and practice materials might prove not to be sensitive enough to student problems, so that a more detailed form might have to be developed. And the methods used for the tutoring, observing, assigning tutees, training tutors, and so on, might also prove to be defective. The important point is this: Thomas Edison is said to have conducted over 20,000 separate experiments -- all failures -- in his search for a substance and structure for a workable incandescent light bulb, before finally getting onto the right track. The fact that he was not completely successful the first time -- or the 20,000th time -- did not suggest to him that he should throw out the entire idea. He made changes and improvements, tried again, revised again, and finally had what he wanted. This is not to say that 20,000 tryouts will be required before the project will finally reach maturity! But total success the first time around is too much to expect. An empirical development process is recommended, so that the results -- including the problems and failures -- are used as a basis for revising the system and eliminating those problems and sources of failure. The test data, observation data, and comments by teachers, tutors, and tutees will contribute to this process.

## THE TUTOR'S PROCEDURAL GUIDES

The behaviors described in narrative form are those that the tutor must learn to perform, consistently and accurately, during the tutor-training sessions. They serve as the basis for the Tutoring Checklist, which is used by the teachers observing both during training and during the actual tutoring sessions. No introductory information or elaboration is provided to accompany these brief descriptions.

1. The overall purpose, function, and nature of the tutoring that you are to do can be described as follows: the tutor, given a question, problem, or task previously performed incorrectly by the tutee, will, through a series of questions, help the tutee arrive at and practice the correct answer.

2. The tutor will not present information in declarative or explanatory form, except in answer to a direct question by the tutee (and even then the question should be answered with a question or questions that should help the student find the answer himself), or to tell the tutee that he is correct, or to praise the tutee. With those exceptions, the tutor should only ask questions, not give direct information.

3. When the tutee answers a question correctly, the tutor should immediately identify it as correct.

4. When the tutee says that he does not understand a question, fact, concept, etc., the tutor should attempt to clarify, again by asking questions that direct the tutee's attention to relevant and critical components of the question, context, or other available information.

5. When the tutee gives an incorrect answer to a question, or makes an error in a sequence of steps leading to an answer or solution, the tutor should immediately ask the tutee to explain his answer or action, adding additional questions to directing attention to the critical components of the question of response sequence and to the available alternatives or useable, relevant information.

6. When the tutee asks for assistance, the tutor should ask questions that will help him determine the kind of help the tutee needs, then the tutor should ask questions that direct the tutee's attention to available sources of guidance, prompting, or other information.

7. When the tutor asks a question and the tutee responds by saying that he does not understand the question, the tutor will not explain his question and then ask it again. The tutor will rephrase

the question, simplifying it and asking for a less complex response.

8. Any other action by the tutee should also be responded to by the tutor in the form of a question. If the tutor decides that a demonstration will be of value, he can perform the demonstration, asking questions rather than providing explanations. Rather than telling the tutee what he is doing, the tutor will ask the tutee to describe what he sees, or to predict what the tutor will do next, or to predict the consequences, etc.

9. When confirming correct responses, the tutor will always identify the response as correct in a completely unambiguous manner. The tutor will avoid simply rushing on to the next problem saying only "O.K., now look at this next question." Instead, he should say, for example, "That is correct. Very good." After a brief pause, it is then appropriate to move on to the next problem.

10. In addition to statements identifying correct responses, including such expressions as "Very good," the tutor should provide praise in more extensive form -- e.g. "You are doing very well; you got that whole series right!" -- after an especially complex correct response or series of responses, or after the tutee has worked hard for a period of time. Praise should not be given too frequently or "given away for nothing;" it should be made contingent upon correct responses.

11. The tutor should never let the tutee see any sign of impatience, frustration, annoyance, or any indication that can be interpreted as disapproving. To the tutee the tutor should always appear friendly and supportive. This means that the tutor must be careful not to frown; although a frown might mean only that the tutor is thinking, concentrating on a problem, a slightly insecure or intimidated tutee is likely to interpret the frown as indicating anger, or dislike, or disapproval. The tutor should smile frequently, and the level of conversation should be friendly and personal in tone, never aloof, conversational rather than formal.

## SUPPLEMENTARY CONSIDERATIONS AND RECOMMENDATIONS

1. When poorer students are to be used as tutors, either exclusively or in combination with better students, the basic techniques described on the preceding pages should be slightly modified. The "questions only" rule can be relaxed, modified to "questions if possible." If the tutor cannot think of a relevant question to ask, he can tell the tutee part of the answer -- or all of the answer if only a simple, brief answer is involved. When this is done, however, the tutor should then immediately ask the tutee to repeat the information just given by the tutor, and, if possible, to explain the answer if a concept, procedure, or process is involved. In this version, the tutor is to give as much help as he can devise in the form of questions, but may present direct information if necessary. He should always require the tutee to answer the question, complete a solution, or carry out the task himself, however, rather than simply telling the tutee and going no further. A revised Tutoring Checklist should be prepared for the entire set of tutor behaviors affected by this change; a revised set of Response Indicator Cards will also be necessary for use during the role play portions of the tutor-training course.

2. The nature of the consequences of our behavior largely determine our behavior in the future. Certain types of consequences are called reinforcers because they increase the probability that the response that produced or achieved those will occur in the future. When reinforcing consequences can be arranged and specified in advance, they are sometimes referred to as "incentives." Contingency management is a methodology for the identification, selection, and arrangement of incentives, making their availability contingent upon the occurrence of certain kinds of behavior. The familiar notion of incentives and rewards is close to the technical meaning and utilization of incentives -- reinforcers.

One reliable "law of human behavior" is the principal of reinforcement, and a sub-principal states that some form of reinforcement must be present or made available if a specified kind of behavior is to continue to occur. This can be interpreted to mean that people (organisms in general) behave in a particular way if preferred incentives are available, contingent upon the occurrence of that behavior, but that without the incentives -- unless the behavior itself is inherently reinforcing -- the behavior will tend not to occur, or to diminish in frequency and duration. The tutors might find tutoring to be inherently reinforcing, and the tutee's reactions and identifiable results might be reinforcing. But that reinforcing aspect might wear off, and tutors can then be expected to drop out of the project. And the tutees might find the tutoring sessions less reinforcing than we might hope, in spite of the success and praise that are available. In order to prevent these undesirable results, a contingency management system might be built into the project. The S. W. R. L. tutoring project described briefly in the body of the Report made use of certain kinds of play activities

as reinforcers: after the tutee had completed an exercise to the satisfaction of the tutor and standards provided, the tutee is permitted to go to a designated area and participate in a previously selected preferred activity.

Contingency management is simply a systematic way of providing desirable results for desired performance, accepting the principal of reinforcement as reality in its why of why and how behavior occurs. The design and implementation of contingency management systems lies beyond the scope of this document, but a totally relevant set of procedures and techniques have been worked and, based on applied experimental data from classroom use of those methods, and described in easy-to-use form by Homme (1969; see reference cited in the body of the Report). The title of Homme's book is, "How to use contingency management in the classroom," and the book is practical and related directly to classroom operation, rather than being a theoretical treatise. The book is programmed in a style appropriate for adults, and requires no major effort or difficulty in order to learn what is involved or how to follow the directions given.

It is suggested that all project staff members read Homme's book during the period of design and development of this project. If project staffing is adequate to meet the design and staffing requirements of a contingency management system, it is suggested that such a system be developed and implemented along with the tutorial system. If this is not possible, then the project staff, having read Homme's book anyway, should design such a system as soon as the tutorial system is operating smoothly and staff can be diverted to this additional project. The project should attempt to determine just how critical the need for a contingency management system might be. The number of disciplinary problems and the number and kinds of learning problems that must be dealt with is a major determinant here. The greater the number and kind of problems, the greater the likelihood that some form of contingency management system will be helpful, possibly essential. In schools with fewer problems, the tutoring activities might by themselves be adequately reinforcing to the tutor, and the tutees might need no additional reinforcers. And the experience of the Youth Tutoring Youth project indicates that even for relatively poor students, or basically unsuccessful students, the tutorial relationship provides considerable reinforcing affective consequences as well as the success and progress visible in the cognitive areas. If a supplementary contingency management is not necessary, it need not be added, but as a "back-up" safety measure, it is highly recommended. Then, if needed, it will already have been developed and will be available for immediate implementation.

3. The tutorial procedures and the tutor-training procedures described here for the student tutors can also be used by other indi-

viduals. Teacher's aides, student teachers, and parents, for example, can utilize the same techniques to provide remedial tutoring either in the school or home setting. Exploratory projects involving other kinds of tutors are recommended if feasible. The same precautions described earlier are relevant for any groups of tutors: adequate training, including role play and observation and critiques, will be necessary; adequate documentation and record-keeping systems must be established; etc. And no matter who the tutors are, or what form the tutoring might take, the tutee's teacher should continue to be the responsible party involved.

4. Much of the structure of the tutorial system described here is based on ideas and data from the tutoring projects identified and described briefly in the body of the Report. The "questions only" approach, however, is original with this tutoring project to the best of my knowledge. This method has been used successfully in other forms in printed materials, but only in an exploratory fashion by me in a tutorial setting. The method is offered here to satisfy the requirement that tutors need guidance materials (the tests and practice materials specified here) but for this minimum project will not have special lesson plans or other step-ty-step tutoring materials. The method should be considered to be experimental, requiring evaluation and developmental modification as data are collected. When problems are encountered, the project staff is encouraged to modify the method as described here, and if necessary, to fall back on the modified approach described in the first numbered paragraph of this section of the Appendix.

Some of the materials referred to in the body of the Report and in the References are available from the organizations involved; others will eventually become part of commercially produced packages available for purchase; others will appear in various education publications. Inquiries should be addressed to the individuals named in the Acknowledgments in the body of the proposal. These materials are very useful and very informative, no matter what kind of tutorial methods or settings are being explored by a school considering the use of student-tutors. All of the individuals contacted by me were very cooperative, and some are willing to make arrangements for interested parties to visit their projects to observe the ongoing tutoring and project management. Although student tutoring has always been viewed as a most attractive method of utilizing available resources as supplementary sources of instruction, only in recent years has the extensive applied research and development been attempted in operational school settings. The data are encouraging, the developing methodologies are becoming more readily applicable in a practical form, and much of the assumed potential is being verified. The future of student-tutoring appears to be very bright and very promising indeed.

END